

# ***Field Report***

## **Sunset Crater Volcano, Wupatki, and Walnut Canyon National Monuments**

### ■ 1.0 Summary

Sunset Crater Volcano, Wupatki, and Walnut Canyon National Monuments are collectively known as the Flagstaff Area Monuments. They are jointly managed from an office located in Flagstaff, Arizona. A general management plan is currently being prepared for the three park units. The U.S. Forest Service is concurrently preparing a plan for the portions of Coconino National Forest adjacent to the Flagstaff Area monuments.

Sunset Crater and Wupatki are located close to one another along U.S. Highway 89 north-east of Flagstaff. Most visitors make a trip through these two national monuments while traveling along U.S. 89. Many people see the areas on their way to or from Grand Canyon National Park. About a third of the visitors leave these parks via the route they used to enter, with the remainder making a through trip. Traffic and parking problems can occur in these park units, but congestion and overcrowding are not severe. As a result, alternative transportation systems (ATS) are not a high priority under existing use conditions. Some of the alternatives being considered in the general management plan could be enhanced by the addition of shuttle services. The alternatives have not been defined in enough detail to identify specific candidate ATS options for these units.

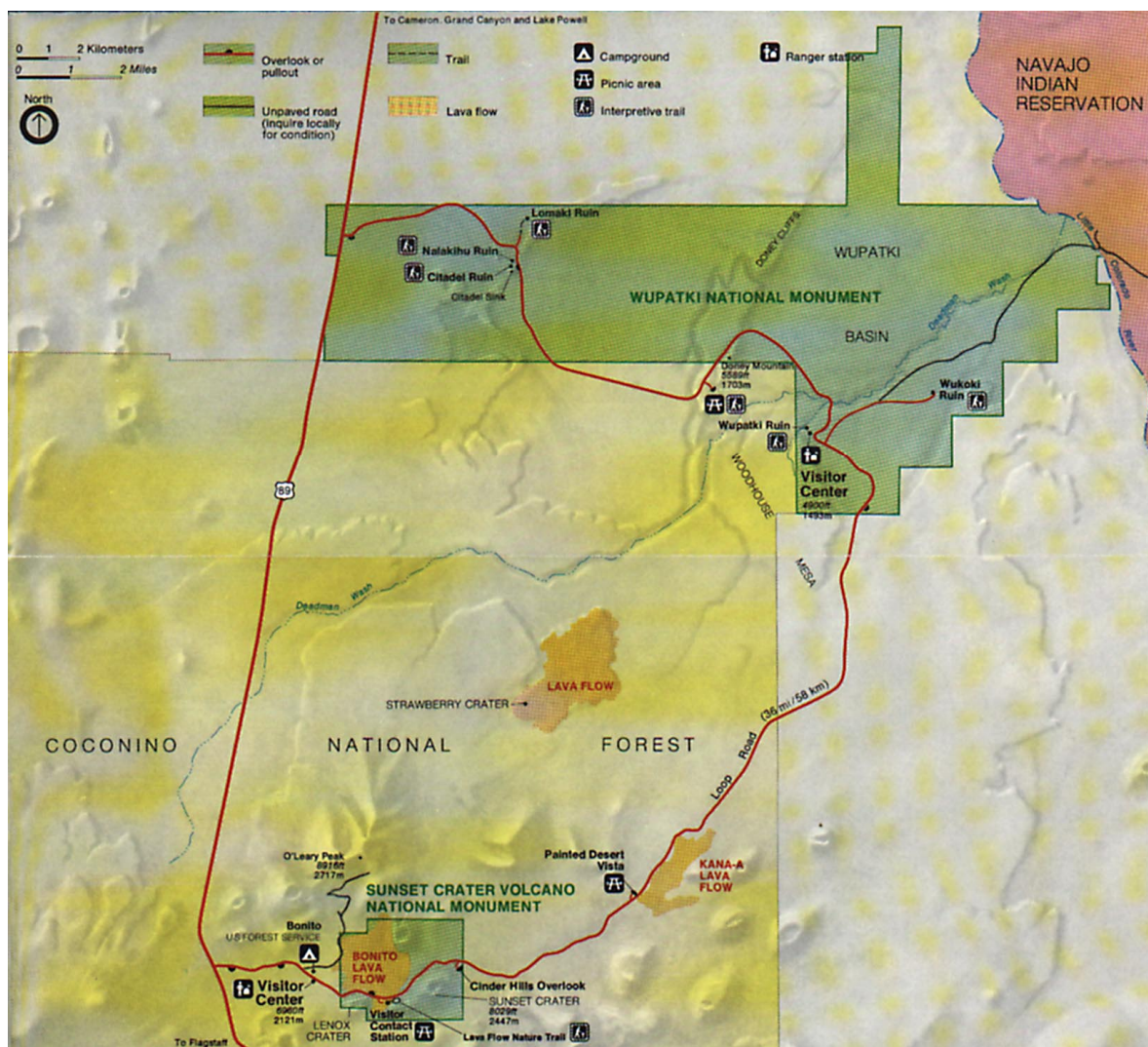
Walnut Canyon National Monument is located east of Flagstaff along Interstate 40. It is served by a single access road. Visitors park in a small lot and travel on foot to view cliff dwellings and mesa-top structures in the Sinagua Indians. The small parking lot constrains the number of visitors that can use the monument. During the summer, the lot is frequently overcrowded. One of the alternatives being considered in the general management plan includes relocating the visitor center near Interstate 40. Walnut Canyon is potentially a strong candidate for alternative transportation if the visitor center were to be relocated and combined with a new parking lot. The three-mile route from the potential visitor center site could be served efficiently with a small fleet of shuttles. The shuttle system and parking lot could be sized to match the carrying capacity of the resources in the monument.

## ■ 2.0 Background Information

### 2.1 Location

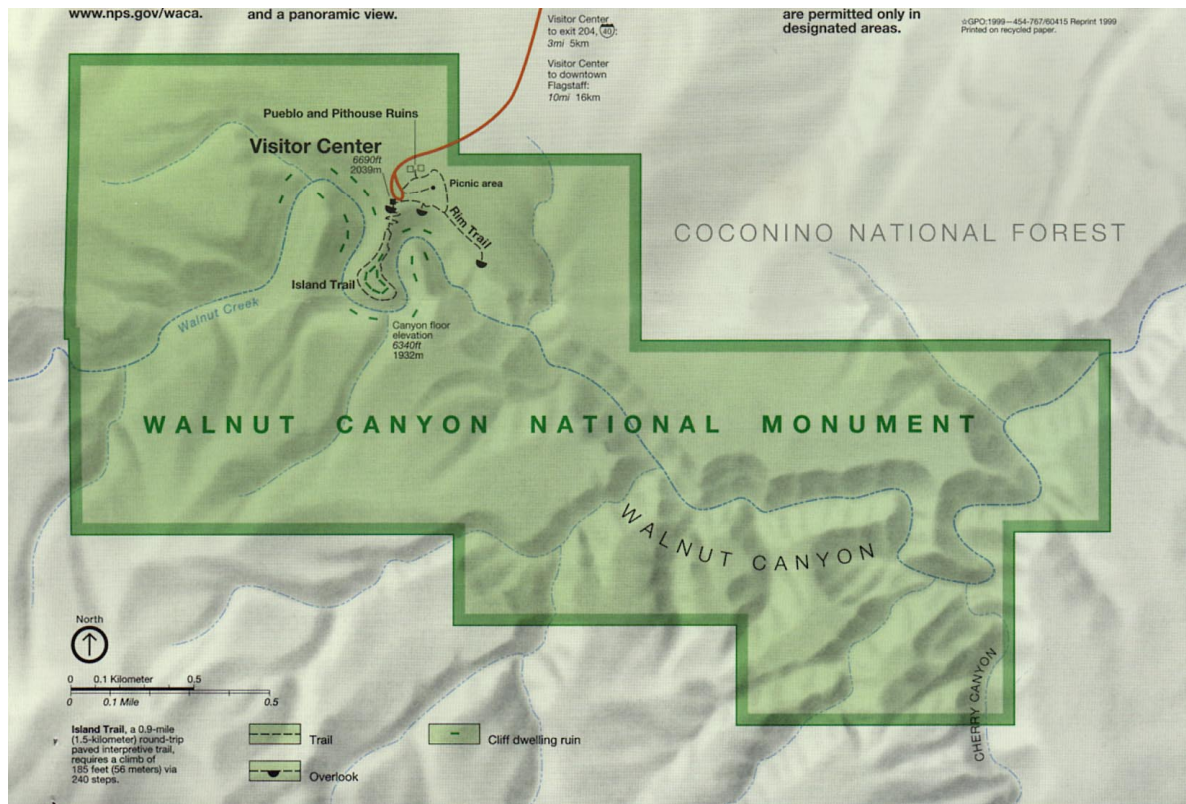
Sunset Crater, Wupatki, and Walnut Canyon National Monuments are located near Flagstaff, Arizona. Sunset Crater National Monument is located 18 miles northeast of Flagstaff via U.S. Highway 89. Wupatki National Monument is located about 17 miles north of Sunset Crater. It is reached via a paved U.S. Forest Service Road (FR545) from Sunset Crater or from U.S. 89 south of Cameron, Arizona. FR545 connects the two park units and forms a loop route with U.S. 89 (See Figure 1).

**Figure 1.** Map from the NPS Brochure for Wupatki and Sunset Crater



Walnut Canyon National Monument is located four miles east of Flagstaff just south of Interstate Highway 40. It is served by an interchange on the highway (See Figure 2).

Figure 2



## 2.1 Administration and Classification

The Flagstaff Area monuments are National Monuments managed by the NPS. The superintendent of the units is Sam Henderson.

## 2.2 Physical Description

Sunset Crater Volcano is the most recent eruption of the San Francisco Peaks volcanic field near Flagstaff. It is located in Ponderosa pine woodlands at about 7,000 feet elevation. The monument contains the cinder cone of the volcano and accompanying lava flows. The entrance station and a supporting campground are located on U.S. Forest Service land near the monument boundary. A visitor center provides interpretation and basic visitor services. A self-guided trail through the lava flow and roadside view points overlooking the monument and distant views to the Painted Desert to the north are the primary visitor activity areas. All visitor use is concentrated near FR545. Visitors may not climb the Sunset Crater Volcano, but may climb other cinder cones in the vicinity.

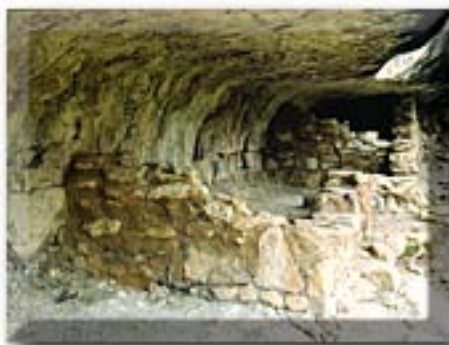




Wupatki National Monument is located in grassland and sage high desert at about 4,800 feet elevation. Largely undeveloped and remote from densely inhabited areas, the monument provides opportunities for visitors to view ruins of ancestral puebloan cultures in well-preserved, unexcavated and largely unstabilized conditions. Expansive views and uncrowded conditions provide a sense of solitude and an opportunity for quiet contemplation. A visitor center is located at the access point to the largest archeological site, which includes a ball court and a “blow-hole” (which emits a stream of cool air into the hot desert environment), among other features of special interest. Ruin sites are scattered along FR545 and at the end of two spur roads. Visitors view the sites by taking unguided walks along short trails leading from the small parking areas serving each site. Guided trips are offered into areas that are otherwise closed to visitor use.



Walnut Canyon National Monument is at the edge of the Colorado Plateau. It encompasses mesa-top Ponderosa Pine forests and a deep, steep-sided canyon with a unique distribution of habitats, including walnut trees on the canyon floor. Walnut Canyon contains ruins of pueblos, pit houses and cliff dwellings of the Sinagua people. A unique “island” in the canyon, formed by the meandering Walnut Creek, is the site of a paved, one-mile self-guided loop trail that passes many cliff dwellings. A lengthy stair case and steep paved ramps take visitors to the trail, which also offers views of the canyon. A second, shorter, paved trail winds along the rim of the canyon and through the pine forest, offering interpretation of the plant life and mesa-top ruins in the area.



**Cliff dwelling rooms.**

Visitors reach the monument on a three-mile road leading up to the mesa-top from I-40. An entrance station controls visitor access to a paved parking area near the canyon rim. The visitor center is located at the entrance to the Island Trail adjacent to the parking lot. It offers interpretation, basic visitor services and vending.

## **2.3 Mission and Goals of the Monuments**

The following purpose statements have been prepared for the Flagstaff Area Monuments as part of the general management planning process:

- **Sunset Crater Volcano** – To preserve and protect the Sunset Crater National Monument’s geological formations, features and resources for scientific interests and research, and for public interest including scenic, educational, and recreational pursuits.
- **Wupatki** – To preserve, protect, care for, and manage the ancestral Hopi sites, other prehistoric remains, and cultural and natural resources of historic, ethnographic, and scientific interest located within Wupatki National Monument.
- **Walnut Canyon** – To protect ancient cliff dwellings and associated resources which are of great ethnographic, scientific, and educational interest, and to properly care for and manage the cultural and natural resources of historic, social, and scientific interest within Walnut Canyon National Monument.

## **2.4 Visitation Levels and Visitor Profile**

**Sunset Crater Volcano** – 1998 visitation was 175,800. Monthly visitation peaks in July, which represents 15 percent of annual visitation. The peak visitation season extends from April through September. Most visitors are family groups and are visiting the monument as part of a larger travel plan. Most visitors (81 percent) are first-time visitors. Visitation is influenced greatly by the major attraction of Grand Canyon National Park – 80 percent of Sunset Crater visitors also travel to Grand Canyon. Sixty-eight percent of Sunset Crater Visitors also visit the adjacent Wupatki National Monument. Most visitors (68 percent)

stay two hours or less. Very few visitors stay more than one day. Overnight camping is provided on adjacent National Forest Service Land. Visitors are distributed among the major attractions as follows: Visitor Center (90 percent), Lava Flow Nature Trail (83 percent), Cinder Hills Overlook (60 percent), Painted Desert Vista (48 percent), and Lenox Crater Trail (27 percent). A typical visitor trip involves driving along FR545, stopping en-route at the various activity areas and viewing scenery, exploring the lava flows, and taking short unguided hikes. Most visitors make a through trip along the FR545 route, visiting both Sunset Crater Volcano and Wupatki National Monuments.

**Wupatki** – 1998 visitation was 217,500. Monthly visitation patterns parallel those of Sunset Crater. Visitor demographics are also similar to those at Sunset Crater, with most visitors being in family groups making a larger vacation trip and visiting for the first time. Wupatki visitors also visit other regional NPS units, including Sunset Crater (92 percent) and Grand Canyon (82 percent). Visitors travel to the following features in the monument: Visitor Center (97 percent), Wupatki Pueblo (92 percent), Ball Court (68 percent), Blow Hole (62 percent). These features are all accessed from the visitor center parking lot. Other features attracting visitors include: Wukoki Ruin (67 percent), the Citadel Ruin (36 percent), Lomaki Ruin (30 percent), and Doney Mountain Picnic Area (four percent). Typical visitor activities include exploring the ruins, viewing scenery, and taking self-guided tours. The typical visitor trip involves driving along FR545 and stopping for brief visits to the archeological sites along the route. Most visitors spend less than two hours in the monument. Two of the sites are reached from spur routes connecting to FR545. Through trips including visits of both Sunset Crater and Wupatki are made by most visitors.

**Walnut Canyon** – 1998 visitation to Walnut Canyon was 115,900. Visitation peaks in June and July, each of which experience 13 percent to 14 percent of annual visitation. Family groups making a trip to several recreation sites in the Flagstaff area represent most visitors. Similar to Sunset Crater and Wupatki, most visitors stay less than two hours. No overnight accommodations are provided in or near the monument. Nearly all visitor destinations are reached from a single parking lot at the end of the three-mile access road from I-40. Visitors are distributed as follows: Visitor Center (97 percent), Island Trail (80 percent), Rim Trail (48 percent), picnic sites along the access road (27 percent). The Island Trail is a one-mile route that loops around tan island formation in the canyon that contains many cliff dwelling sites. Visitors can enter some of the sites. The loop is reached by a long set of stairs and steep paved ramps than can make the hike strenuous. The typical duration of the walk along the Island Trail is one hour or more.

### ■ 3.0 Existing Conditions, Issues and Concerns

After a decade of relatively rapid visitation growth, visitation to the Flagstaff Area Monuments has declined since 1993, a trend which mirrors conditions at Grand Canyon National Park. At the same time, development on private lands near the monuments has resulted in commuter traffic on FR545 through Sunset Crater and Wupatki and increased recreational use near the boundaries of Walnut Canyon. Although all of the units are

open to visitor use during daylight hours only, commuter traffic and incidental recreational uses by local residents occurs outside operating hours.

Visitor facilities at the monuments, including visitor centers, are inadequate for current needs. Many visitors encounter park resources before receiving any interpretation. Protection of natural and cultural resources from damage by inappropriate visitor use and activities of people traveling through the monuments is a major concern at all of the areas.

Visitor surveys and public comments during the planning process for a joint General Management Plan for the areas reveal that visitors value the ability to experience the vistas and landscapes of the areas by scenic driving tours. This experience is especially important at Wupatki.

### **3.1 Transportation Conditions, Issues and Concerns**

**Sunset Crater Volcano** – Seventy percent of the combined visitors to Sunset Crater and Wupatki National Monuments enter from the south. Two thirds of these continue to Wupatki along FR545. About one third of the visitors arriving at Wupatki from the south return to U.S. 89 the same way, rather than making a loop by exiting at the north end of FR545. All of the visitor activity areas and viewpoints in Sunset Crater are reached from FR545. The parking areas serving the visitor destinations are generally adequate to meet existing demand and roads are not congested. Commuter traffic from adjacent private lands and the Navajo Indian Reservation create 24-hour traffic demand, despite the intended night closure of the monument. Alternatives under consideration in the General Management Plan would eliminate through travel between Sunset Crater and Wupatki.

**Wupatki** – Access to Wupatki is provided primarily by FR545. However, multiple roads enter the monument and the inability to physically close them at night makes protection of cultural resources difficult and increase the cost of maintenance, emergency response, and other administrative activities. The parking areas serving each of the visitor destinations are generally adequate for existing demand and roads are not congested. As in Sunset Crater, multiple use of the roads in the monument is a concern that will increase as development on private lands continues.

**Walnut Canyon** – Nearly all visitor use is concentrated around the single parking lot serving the visitor center. On busy days, the parking area fills and visitor parking spills onto the access road and into the residential area. Parking facilities are inadequate for tour buses and school buses which bring student groups to the monument. There is no opportunity to expand the parking lot in its current location. The three-mile access road is generally not congested and the picnic areas along it receive limited use. On the south side of the canyon, U.S. Forest Service roads lead to the canyon rim, but there is no NPS presence. FR303 along the north monument boundary carries moderate to heavy traffic from forest users and commuters.

### **3.2 Community Development Conditions, Issues and Concerns**

The primary community development concern for the Flagstaff Area Monuments is the impact to the monuments for development on private lands and the resulting increases in traffic and incidental recreation use in and near the units. Commuter and other traffic passes through Sunset Crater and Wupatki National Monuments from adjacent private land and the Navajo Indian Reservation. At Walnut Canyon, hiking, jogging, mountain biking, and rock climbing uses by local residents occurs on adjacent U.S. Forest Service lands and along the Arizona trail, which passes by the monument boundary. Some of these uses spill over onto Walnut Canyon land, resulting in the risk of resource damage.

### **3.3 Natural or Cultural Resource Conditions, Issues and Concerns**

The primary resource-related issues stem from existing and potential damage caused by inappropriate visitor use (such as trampling of vegetation by visitors leaving trails) and by unauthorized access after hours. Resource management is made difficult by the need to keep FR545 through Sunset Crater and Wupatki open to through traffic at all hours. Additional road access into the units complicates resource management. Also, the location of the Wupatki and Walnut Canyon visitor centers causes visitors to come into contact with resources prior to receiving interpretation. As a result, visitors may inadvertently cause damage to fragile and irreplaceable resources. Visitors to Wupatki and Walnut Canyon are allowed to see ruins that have been minimally hardened at close range and can enter, touch and directly experience these unique resources. This access is important to the visitor experience, yet it exposes the resources to potential damage.

### **3.4 Recreation Conditions, Issues and Concerns**

Visitor surveys reveal a high level of satisfaction with the experience offered at the Flagstaff Area Monuments. Visitors generally do not feel crowded and leave the units with a better understanding of the features they contain. Scenic driving tours are an important element of the overall experience to those making comments as part of the General Management Plan process.

The interpretive facilities and materials in the monuments need improvement. Many displays are out of date or inaccurate. The visitor centers could be better located and expanded to meet current visitor needs.

Some alternatives under consideration in the General Management Plan would diversify recreation opportunities. Other alternatives would change the ways that visitors experience the monuments.



## ■ 4.0 Planning and Coordination

### 4.1 Unit Plans

A General Management Plan is currently being prepared for the Flagstaff Area Monuments. Statements of purpose and significance have been prepared for each of the units, issues have been identified by the public and the Park staff, management zone descriptions have been developed for the monuments, and alternatives have been defined. A series of newsletters and public meetings have been used to provide information to the public. A draft General Management Plan/Environmental Impact Statement is scheduled to be available for public review in December 1999.

### 4.2 Public and Agency Coordination

The U.S. Forest Service is preparing the Flagstaff Lake Mary Ecosystem Analysis for the portions of Coconino National Forest lands surrounding the Flagstaff Area Monuments. The General Management Plan for the NPS Flagstaff areas and the Ecosystem Analysis are being conducted in a parallel, collaborative process. A joint newsletter describing the process was distributed in April 1999. The alternatives being considered in each plan are being coordinated and the preferred alternatives in each plan will be mutually supportive. Preferred alternatives have not been determined at this writing.

## ■ 5.0 Assessment of Need and System Options

### 5.1 Magnitude of Need

The existing use levels and travel patterns of visitors to Sunset Crater Volcano and Wupatki National Monuments result in little need for ATS. Private vehicle use provides a convenient means for visitors to see both monuments and to appreciate the range of ecosystems that exist along FR545. The predominant through travel pattern along FR545 could not be served conveniently by ATS service. Some of the alternatives being considered in the General Management Plan would eliminate this travel pattern, thereby increasing the potential utility of ATS service. However, existing parking facilities appear to be adequate to accommodate expected use levels. ATS service may be desirable under these alternative to meet visitor experience and resource protection objectives, but it would not be required simply to meet expected demand. Because the applicability of ATS to Sunset Crater Volcano and to Wupatki is dependent on the selection of a preferred alternatives and because ATS would not be needed to meet expected demand, specific ATS options have not been developed for these units.

The location of visitor facilities and the in/out access to Walnut Canyon National Monument make this unit a good candidate for ATS. The parking lot serving the monument is inadequate to meet demand from June through August and its location within the

Ponderosa forest and near archeological sites increases the potential for resource damage from visitor use. An ATS could provide improved access for visitors and could be used to provide interpretation of the park resources before visitors are exposed to them. ATS service could be developed for any of the alternatives under consideration in the ongoing General Management Plan. ATS would be especially effective if a new visitor center were developed along with a parking area near I-40.

## **5.2 Range of Feasible Transit Alternatives**

Two alternatives are identified for consideration at Walnut Canyon National Monument.

- **Seasonal Point-to-Point Shuttle** – The first alternative would provide a point-to-point shuttle from a new parking area on the access road near I-40 to the existing visitor center. The new parking area would include information displays to orient visitors to the monument. The primary interpretive facility would continue to be provided at the existing visitor center. During the peak season (June through August and weekends in May and September) visitors in private vehicles would park in the new lot and travel on a shuttle to the visitor center. On the short ride visitors could receive interpretive information from pre-recorded tapes and/or the driver. Visitors in tour buses or school groups could be required to park in the new lot and travel by shuttle or they could continue in their buses to the existing parking lot. Allowing large groups, such as tours and school classes, to stay in their own groups to reach the visitor center would avoid disrupting the normal schedule of the shuttles and would allow smaller shuttle vehicles to be used. During the off-peak season all visitors would travel in their own vehicles to the existing parking area, which is adequate to accommodate off-season demand. The shuttle service in this alternative is similar to the service operating between the visitor center parking area and the quarry site at Dinosaur National Monument during the summer.
- **Year-Round Point-to-Point Shuttle from New Visitor Center** – The second alternative would be similar to the first with the addition of a new visitor center at the new parking facility and operation of the new parking area and shuttle system on a year-round basis. It is assumed that all visitors, including those in tour buses and school groups, would park in the new lot, visit the new visitor center, and travel by shuttle bus to the canyon rim. The existing visitor center could be reprogrammed to provide expanded interpretation to complement the program at the new visitor center.

### ***Characteristics of the ATS Alternatives***

Two scenarios have been analyzed for the ATS alternatives. In the first scenario, ATS service is scaled to serve existing visitation to Walnut Canyon. In the second scenario, an increased level of visitation is assumed.

Characteristic	Alternative 1 – Seasonal		Alternative 2 – Year-Round	
	Existing Visitation	Maximum Visitation	Existing Visitation	Maximum Visitation
Annual Visits	115,900	231,800	115,900	231,800
Buses	4	6	5	7
Parking Spaces in New Lot	75	145	75 (plus tour bus spaces)	145 (plus tour bus spaces)
Time Between Buses (Peak Hours)	10 minutes	5 minutes	10 minutes, plus dedicated bus for tour bus passengers	5 minutes, plus dedicated bus for tour bus passengers
Riders Per Hour (Peak Hours)	112 each way	225 each way	112 each way, plus tour bus passengers	225 each way, plus tour bus passengers
Riders Per Year	49,500	99,000	115,900	231,800

These characteristics are illustrative of the type of transit service that could meet the needs of visitors to Walnut Canyon National Monument. More detailed planning is needed to make a final determination of the need for transit service and the characteristics of a transit system that would be best-suited to Walnut Canyon.

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